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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/024,314	12/21/2001	Nobuaki Yamada	829-595	6744

7590 05/16/2003

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EXAMINER

NGUYEN, DUNG T

ART UNIT	PAPER NUMBER
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2871

DATE MAILED: 05/16/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/024,314

Applicant(s)

Yamada et al.

Examiner

Dung Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on Apr 29, 2003.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1, 3-11, and 22-31 is/are pending in the application.
- 4a) Of the above, claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 24 and 26 is/are allowed.
- 6) ☒ Claim(s) 1, 3-11, 22, 23, 25, and 27-31 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
*See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s). _____ 6) ☐ Other: _____

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Response to Arguments

1. Since this application is eligible for the transitional procedure of 37 CFR 1.129(a), and the fee set forth in 37 CFR 1.17(r) has been timely paid, the finality of the previous Office action is hereby withdrawn pursuant to 37 CFR 1.129(a). Applicant's response submission after final filed on 04/29/2003 has been entered.
2. Applicant's arguments with respect to claims 1 and 22 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

- (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
4. Claims 1, 3, 9-11, 22-23, 27 and 30-31 are rejected under 35 U.S.C. 102(b) as being anticipated by Applicants submitted prior art, Yamada et al., Patent No. 5,473,450.

The above claims are anticipated by Yamada et al. figures 6, 12A-12B and accompanying text which disclose a liquid crystal display (LCD) device comprising:

a pair of substrates (1, 3);

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a negative dielectric anisotropic liquid crystal layer (between the pair of substrates), wherein liquid crystal molecules are aligned in vertical direction (figure 12A) and axis-symmetrically (figure 12B);

a plurality of convex portions (wall 8) defining a pixel region, wherein a thickness of the liquid crystal layer in the pixel region is larger than a thickness of the liquid crystal layer outside the pixel region (figure 6) as claimed.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 4-6, 25 and 28-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamada et al., Patent No. 5,473,450, in view of Applicants submitted prior art Horie et al., JP 8-292423.

Regarding the above claims, Yamada et al. ('450) disclose the claimed invention as described above except for a projection at the central portion of the pixel region and the thickness of the liquid crystal layer in the pixel region being largest at a central portion and continuously decreases toward a peripheral portion of the pixel region as well as axis-symmetrically changed around the central portion of the pixel region. Horie et al. do disclose a projection (4) at the

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central portion of the pixel region and the thickness of the liquid crystal layer in the pixel region being largest at a central portion and continuously decreases toward a peripheral portion of the pixel region as well as axis-symmetrically changed around the central portion of the pixel region (figure 5). Therefore, it would have been obvious to one skilled in the art at the time of the invention was made to employ a projection at the central portion of the pixel region as well as a vertical alignment layer having a shape to change a thickness of a liquid crystal layer as shown by Horie et al. in order to improve the dependency of an LCD element on visual angles and to lessen the rough feel of display (see abstract, purpose).

7. Claims 7-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicants submitted prior art, Yamada et al., Patent No. 5,473,450, in view of Applicants submitted prior art, Yamada et al., US 5,627,665.

Regarding claims 7-8, Yamada et al. ('450) disclose the claimed invention as described above except for a twist angle and a retardation value of the liquid crystal layer as well as a pair of polarizing plates. Yamada et al. ('665) do disclose a twisted angle of 90 degrees (col. 19, ln. 50) and a retardation value of a liquid crystal layer being in the range of 300nm and 650nm (col. 19, ln. 13). Therefore, such disclosed range of the twist angle and the retardation value of the liquid crystal layer in Yamada et al. makes possible the twisted angle claimed range of about 45 degrees to about 110 degrees and the retardation value claimed range of 300nm to 500nm and overlapping ranges are at least obvious. *In re Malagari*, 499 Fed.2d 1297, 182 USPQ 549 CCPA 1974.

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Allowable Subject Matter

8. Claims 24 and 26 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The references of record neither disclose nor make obvious an LCD comprising an area of the region in which the liquid crystal molecules keep a homeotropic alignment state (Sa) and an area of the pixel region (A) satisfies the relationship of $0 < Sa/A < 4\%$ as set forth in claims 24 and 26.

Conclusion

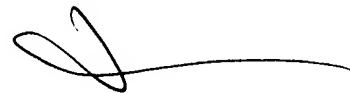
9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Dung Nguyen whose telephone number is (703) 305-0423. The fax phone number for this Group is (703) 746-7730.

Any information of a general nature or relating to the status of this application should be directed to the group receptionist whose telephone number is (703) 308-0956.



KENNETH PARKER
PRIMARY EXAMINER

DN
05/12/2003